



Tronix 1 Lesson 01 Test

Basic Circuits

- Credited for the naming of the atom.
 - Americans
 - Italians
 - Germans
 - Greeks
 - Russians
- A law that states "**like charges repel and unlike charges attract each other**".
 - Ohm's Law
 - The Conventional Law of Electronics
 - The Law of Charges
 - Voltage Law
 - Watt's Law
- The part of an atom that orbits around the center
 - protons
 - neutrons
 - electrons
 - molecules
 - particles
- The nucleus of an atom is made-up of
 - electrons and protons
 - electrons and neutrons
 - protons and neutrons
 - protons only
 - neutrons only
- In an electronic circuit, the electrons flow in this direction
 - from the positive to the negative terminal.
 - from the negative to the positive terminal.
 - from negative to positive and back to the negative terminal.
 - from positive to negative and back to the positive terminal.
 - flows both directions.
- Amber can be charged by rubbing it with
 - cotton
 - silk
 - polyester
 - fur
 - all of the above
- Glass can be charged by rubbing with
 - cotton
 - silk
 - polyester
 - fur
 - all of the above
- Wire generally has _____ resistance to the flow of electrons.
 - no
 - low
 - high
 - both A and B
 - none of the above
- _____ is the best conductor for electricity.
 - aluminum
 - copper
 - gold
 - silver
 - carbon
- Wire that is connected to the positive and the negative terminal is known as
 - complete circuit
 - short circuit
 - open circuit
 - both A and B
 - both B and C



Tronix 1 Lesson 02 Test

Resistor Color Code

- T/F** There are generally four color bands on a resistor.
- These two bands represent number values only.
 - Bands 3 and 4
 - Bands 2 and 3
 - Bands 1 and 2
 - Bands 1 and 3
 - Bands 1 and 4
- This color band represents the number of zeros added to the value of the resistor.
 - Band 1
 - Band 2
 - Band 3
 - Band 4
 - Band 5
- When the fourth band is a gold color the tolerance for the resistor is
 - 5%
 - 10%
 - 15%
 - 20%
 - 25%
- When a fourth band is not present the tolerance for the resistor is
 - 5%
 - 10%
 - 15%
 - 20%
 - 25%
- A 100 ohm resistor with a gold band has the tolerance range of
 - 90 to 110 ohms
 - 95 to 105 ohms
 - 80 to 120 ohms
 - 85 to 125 ohms
 - 100 ohms only
- The power value for resistors is rated in
 - ohms
 - volts
 - amps
 - watts
 - coulombs
- How many colors do we use in the resistor color code?
 - five
 - ten
 - fifteen
 - twenty
 - two hundred and fifty six
- The letter K stands for _____ zeros
 - 10
 - 100
 - 1000
 - 10,000
 - 100,000
- The value for a 5.8 M ohm resistor is can be written . . .
 - 5,800 ohms
 - 58,000 ohms
 - 580,000 ohms
 - 5,800,000 ohms
 - 58,000,000 ohms



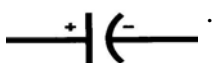

Tronix 1 Lesson 03 Test

Solderless Circuit Board

1. **T/F** The solderless circuit board is used to test circuits before assembling the components permanently.
2. The solderless circuit board that we use in the experiments has.
 - A. 100 holes
 - B. 200 holes
 - C. 300 holes
 - D. 400 holes
 - E. 500 holes
3. The holes are grouped in sets of
 - A. four
 - B. five
 - C. six
 - D. ten
 - E. It does not matter because wires can connect all the holes together.
4. The center divider of the circuit board is called a
 - A. bridge
 - B. groove
 - C. channel
 - D. divider
 - E. separator
5. **T/F** The size of the wire placed into the solderless circuit board is not important
6. **T/F** It does not matter which holes that you place the components into the solderless circuit board.
7. **T/F** The label system for the holes on the solders circuit board uses only numbers.
8. **T/F** IC chips can be placed anywhere on the solderless circuit board.
9. **T/F** When connecting the battery snap on the solderless circuit board, both terminals should be located on the same side of the channel.
10. **T/F** All solderless circuit boards are the same size.

Tronix 1 Lesson 04 Test

Reading Capacitor Values

1. **T/F** There are basically two types of capacitors electrolytic and ceramic.
2. Electrolytic capacitors have
 - A. polarity
 - B. have one lead shorter than the other
 - C. have two plates inside
 - D. have an insulator inside
 - E. all of the above
3. Ceramic disc capacitors have
 - A. non polar leads
 - B. have one lead shorter than the other
 - C. have two plates inside
 - D. have an insulator inside
 - E. all of the above.
4. A 103 ceramic capacitor is equal to
 - A. 10,000 Pico farads
 - B. 0.01 microfarads
 - C. 3 Pico farads
 - D. both A and B are correct
 - E. none of the above
5. **T/F** The long lead of an electrolytic capacitor is the positive terminal.
6. **T/F** A 473 disc capacitor is rated 0.473 uF.
7. **T/F** All capacitors are temporary storage devices for electric current.
8. **T/F** This is the symbol for a ceramic capacitor 
9. **T/F** This is the symbol for the electrolytic capacitor 
10. **T/F** The following are generally ceramic capacitors 10 mfd. 100 mfd, and 1000 mfd capacitors.

Tronix 1 Lesson 05 Test

How a Resistor Works

1. **T/F** Resistors increase the current flow in a circuit.

2. The function of a resistor is to . . .

- A. limit current flow
- B. have a color code
- C. have fixed values
- D. are non-polar
- E. all of the above

3. An LED is brighter when you insert a _____ into the circuit.

- A. 100 ohm resistor
- B. 1 K ohm resistor
- C. 1 M ohm resistor
- D. 10 ohm resistor
- E. it does not matter

4. In order for the circuit to work properly the LED has to

- A. have the cathode facing the positive terminal.
- B. have a resistor between the negative terminal and the LED.
- C. have the cathode facing the negative terminal.
- D. Have a resistor between the positive terminal and the LED.
- E. A and B are correct
- F. C and D are correct

5. **T/F** The current flow in the circuit is from positive to negative terminal.

6. **T/F** The flat side of an LED is cathode.

7. **T/F** The anode lead of an LED is positive.

8. **T/F** This is the symbol for an LED .



9. **T/F** This is the symbol for a fixed carbon resistor



10. **T/F** Resistors last longer when they are bent by hand instead of using pliers.

Tronix 1 Lesson 06 Test

How a Potentiometer Works

1. **T/F** Resistors decrease the current flow in a circuit.
2. The purpose of the fixed 100 ohm resistor in this experiment is
 - A. to provided a backup if the potentiometer does not work.
 - B. to keep the LED from burning out from too much current.
 - C. for varying the current flow in the circuit.
 - D. not needed in the circuit.
 - E. all of the above
3. A variable resistor is called a _____ .
 - A. fixed resistor
 - B. ballast resistor
 - C. wire wound resistor
 - D. potentiometer
 - E. all of the above
4. The value rating for the potentiometer in this experiment is
 - A. 10 ohms
 - B. 100 ohms
 - C. 100 K ohms.
 - D. 100 M ohms
 - E. none of the above
5. **T/F** The potentiometer in this experiment has an anode and cathode.
6. **T/F** A potentiometer is also called a rheostat.
7. **T/F** Potentiometers can also be used to divide voltage.

8. **T/F** This is the symbol for an LED



9. **T/F** This is the symbol for a potentiometer



10. **T/F** All three wires on the potentiometer are used in this experiment.

Tronix 1 Lesson 07 Test

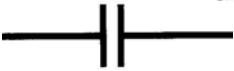
How a Photocell Works

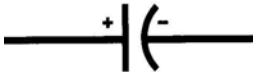
1. **T/F** A photocell acts as a variable resistor in a circuit.
2. When the light striking the photocell increases, the resistance of the photocell
 - A. decreases.
 - B. increases.
 - C. remains the same.
 - D. is infinite.
 - E. none of the above.
3. When the light striking the photocell decreases, the resistance of the photocell
 - A. decreases.
 - B. increases.
 - C. remains the same.
 - D. is infinite.
 - E. none of the above.
4. When the light striking the photocell increases, the current of the photocell
 - A. decreases.
 - B. increases.
 - C. remains the same.
 - D. is infinite.
 - E. none of the above.
5. When the light striking the photocell decreases, the current of the photocell
 - A. decreases.
 - B. increases.
 - C. remains the same.
 - D. is infinite.
 - E. none of the above.
6. When the light striking the photocell increases, the brightness of the LED . . .
 - A. decreases.
 - B. increases.
 - C. remains the same.
 - D. is infinite.
 - E. none of the above.
7. When the light striking the photocell decreases, the brightness of the LED . . .
 - A. decreases.
 - B. increases.
 - C. remains the same.
 - D. is infinite.
 - E. none of the above.
8. **T/F** This is the symbol for a photocell .
9. **T/F** Photocells are light sensitive.
10. **T/F** Photocells produce current in a circuit.

Tronix 1 Lesson 08 Test

How a Capacitor Works

1. **T/F** A capacitor acts as a permanent storage for electrical energy.
2. A capacitor . . .
 - A. controls current flow in a circuit.
 - B. acts as an electron reservoir.
 - C. supplies voltage the circuit.
 - D. amplifies current.
 - E. all of the above.
3. Capacitance of a capacitor is measured in
 - A. farads.
 - B. ohms.
 - C. volts.
 - D. amps.
 - E. coulombs.
4. Two major types of capacitors are . . .
 - A. NPN and PNP.
 - B. VCO and ICO.
 - C. Ceramic and Electrolytic.
 - D. Plastic and Metal.
 - E. none of the above.
5. Electrolytic capacitors . . .
 - A. have polarity.
 - B. have positive and negative terminals.
 - C. must be connected in the right direction.
 - D. all of the above.
 - E. none of the above.
6. Ceramic capacitors . . .
 - A. do not have polarity.
7. When the battery is disconnected, the LED
 - A. turns off immediately.
 - B. glows then fades out.
 - C. starts to blink.
 - D. is not affected.
 - E. none of the above.
8. **T/F** This is the symbol for an electrolytic capacitor.


9. **T/F** This is the symbol for a ceramic capacitor.


10. In this experiment the LED continues to glow then fades out after the battery is disconnected because . . .
 - A. the resistance increases.
 - B. the capacitor discharges.
 - C. the battery discharges
 - D. the LED is installed backwards.
 - E. the LED stays lit.

Tronix 1 Lesson 09 Test

How a Speaker Works

1. **T/F** A speaker is an electromechanical device
2. A speaker transforms electrical energy into . . .
 - A. light.
 - B. heat.
 - C. sound waves.
 - D. microwaves.
 - E. none of the above.
3. When a speaker is energized, the cone . . .
 - A. moves.
 - B. produces heat.
 - C. emits light.
 - D. does nothing.
 - E. stores energy.
4. The direction the speaker cone moves is dependent upon . . .
 - A. the resistance in the circuit.
 - B. the direction of the current flow.
 - C. the battery voltage.
 - D. the temperature.
 - E. all of the above.
5. When the cone of the speaker moves it . . .
 - A. generates sound waves.
 - B. emits light.
 - C. stores electricity.
 - D. heats up the air around the cone.
 - E. none of the above.
6. The larger the current flowing through the speaker . . .
 - A. the smaller the movement of the cone.
 - B. the brighter the cone.
 - C. the greater the resistance.
 - D. the larger the movement of the cone.
 - E. none of the above.
7. When you touch the probe tip on the resistor
 - A. current circulates through the speaker.
 - B. the speaker cone moves.
 - C. sound is produced
 - D. all of the above.
 - E. none of the above.
8. **T/F** To produce a softer sound you increase the value of the resistor in the circuit.
9. **T/F** To produce a louder sound you decrease the value of the resistor in the circuit.
10. When you reverse the polarity of the circuit and then touch the tip of the probe to the resistor the cone . . .
 - A. moves the same direction as before.
 - B. moves in the opposite direction .
 - C. does not move
 - D. emits light.
 - E. the speaker is ruined.

Tronix 1 Lesson 10 Test

How a Diode Works

- T/F** A diode allows current to flow any direction.
- When current flows through an LED it emits . . .

 - light.
 - heat.
 - sound waves.
 - microwaves.
 - x-rays.
- A diode is an electronic device that allows current to flow through it . . .

 - in two directions.
 - in one direction only.
 - when the cathode is positive.
 - when the anode is negative.
 - none of the above.
- The two leads of a diode are called . . .

 - emitter and base.
 - base and collector.
 - emitter and cathode.
 - base and anode.
 - anode and cathode.
- The polarity of the anode is . . .

 - bi-polar.
 - negative.
 - positive.
 - neutral.
 - none of the above.
- The polarity of the cathode is . . .









 - bi-polar.
 - negative.
 - positive.
 - neutral.
 - none of the above.
- The correct symbol for a diode is

 -
 -
 -
 -
 - none of the above.
- Which diode symbols indicates the correct polarity to allow current flow . . . ?

 -
 -
 -
 -




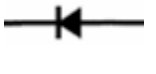
Tronix 1 Lesson 11 Test

How an SCR Works

- T/F** An SCR is a Silicon Controlled Radio.
- An SCR is a diode with three terminals, called . . .
 - emitter, base, and collector.
 - emitter, gate, and collector
 - emitter, anode, and collector
 - emitter, cathode, and gate
 - anode, cathode, and gate
- The part of the SCR used to trigger the device into conduction is the . . .
 - collector.
 - gate.
 - emitter.
 - anode.
 - cathode.
- If the SCR is conducting and the positive voltage is removed from the gate, it will . . .
 - stop conducting.
 - conduct intermittently.
 - continue conducting.
 - burn-up the SCR.
 - none of the above.
- If an SCR is conducting and the positive voltage is removed from its anode, it will . . .
 - stop conducting.
 - conduct intermittently.
 - continue emitting.
 - burn-up the SCR.
 - none of the above.
- T/F** Polarity is not important when inserting an SCR into a circuit.
- The correct symbol for a diode is
 - 
 - 
 - 
 - 
 - none of the above.
- Which SCR symbol indicates the correct polarity to allow current flow when the gate is activated . . . ?
 - 
 - 
 - 
 - 





Tronix 1 Lesson 12 Test

How an NPN Transistor Works

1. T/F An NPN transistor has four leads.
2. The transistor is a component used to . . .
 - A. store electricity.
 - B. amplify electricity
 - C. transform electricity into sound waves
 - D. produce heat
 - E. all of the above
3. The three leads of a transistor are called . . .
 - A. emitter, base, and gate
 - B. anode, cathode, and gate
 - C. anode, cathode, and collector
 - D. emitter, base, and collector
 - E. emitter, base, and anode.
4. Transistors are manufactured in two types . . .
 - A. ceramic and electrolytic.
 - B. VCO and CVO.
 - C. NPN and PNP.
 - D. EBC and NCR.
 - E. none of the above.
5. In an NPN transistor, the collector flows from . . .
 - A. base to collector.
 - B. emitter to base.
 - C. emitter to collector.
 - D. gate to collector.
 - E. none of the above.
6. In an NPN transistor, the base current flows from . . .
 - A. base to collector.
 - B. emitter to base.
 - C. emitter to collector.
 - D. gate to collector.
 - E. none of the above.
7. In an NPN transistor, the collector current
 - A. is larger than the base current.
 - B. is smaller than the base current.
 - C. has the same value as the base current.
 - D. is negative.
 - E. none of the above.
8. Which of the schematic symbols is correct for an NPN transistor?
 - A. 
 - B. 
 - C. 
 - D. 

Tronix 1 Lesson 13 Test

How a PNP Transistor Works

- T/F** An PNP transistor has three leads.
- A transistor works as a current amplifier by controlling a large current with. . .
 - no current at all.
 - a small current
 - equally large current
 - a large resistance
 - none of the above
- Transistors are made from semiconductor materials such as . . .
 - carbon
 - copper
 - silicon
 - potassium
 - aluminum.
- The important process of having a small current control a large current is known as . . .
 - oscillation
 - synthesis.
 - hysteresis.
 - amplification.
 - electrification.
- In a PNP transistor, the collector current flows from . . .
 - collector to emitter.
 - base to emitter.
 - collector to base.
 - gate to collector.
 - none of the above.
- In a PNP transistor, the base current flows from . . .
 - base to collector.
 - emitter to base.
 - emitter to collector.
 - base to emitter.
 - none of the above.
- In a PNP transistor, the collector current
 - is larger than the base current.
 - is smaller than the base current.
 - has the same value as the base current.
 - is negative.
 - none of the above.
- Which schematic symbol is correct for a PNP transistor?
 - 
 - 
 - 
 - 



Tronix 1 Lesson 14 Test

How a Transistor Oscillator Works

1. **T/F** A transistor oscillator does not generate sounds.
 - A. one volt per second.
 - B. ten cycles of change per second.
 - C. one cycle of change per second.
 - D. sixty cycles of change per second.
 - E. no cycles of change per second.
2. Anything moving back and forth in a regular, uniform manner is said to be . . .
 - A. orbiting.
 - B. oscillating
 - C. wavering
 - D. erratic
 - E. deviating
3. Typical examples of mechanical oscillators are . . .
 - A. a pendulum
 - B. a playground swing
 - C. a metronome
 - D. all of the above
 - E. none of the above.
4. An electronic oscillator is an electronic device that generates . . .
 - A. heat
 - B. a constantly changing current
 - C. opposition to the current.
 - D. constant current.
 - E. all of the above.
5. The frequency of an oscillating current is a measurement of . . .
 - A. the number of changes occurring in one second.
 - B. amplitude of the changes.
 - C. the voltage of the signal.
 - D. the amps produce in a second.
 - E. all of the above.
6. The unit of measurement for frequency is the Hertz which represents . . .
 - A. one NPN transistor.
 - B. one PNP transistor.
 - C. two NPN transistors
 - D. two PNP transistors.
 - E. one NPN and one PNP transistor.
7. The oscillator circuit that you constructed contains . . .
 - A. one NPN transistor.
 - B. one PNP transistor.
 - C. two NPN transistors
 - D. two PNP transistors.
 - E. one NPN and one PNP transistor.
8. **T/F** The transistors in the experiment can be reversed and the circuit will still work correctly.

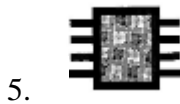
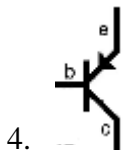
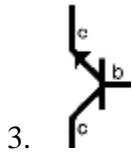
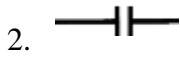
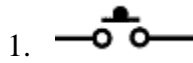


Tronix 1 Lesson 15 Test

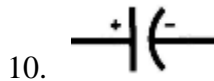
How a 555 Timer Works

1. **T/F** A 555 IC timer would be used in a gear driven clock.
 - A. #2 of the 555 IC.
 - B. #3 of the 555 IC.
 - C. #4 of the 555 IC.
 - D. #8 of the 555 IC.
2. The blinking light of this circuit is built around a . . .
 - A. two transistor oscillator.
 - B. CMOS chip
 - C. 555 IC timer
 - D. 2N3904 transistor
 - E. light activated diode
3. The ground pin for a 555 IC timer is
 - A. #1
 - B. #2
 - C. #3
 - D. #4
 - E. #8
4. A clock as the term is used in electronics, is a device that . . .
 - A. tells time
 - B. generates light
 - C. amplifies current.
 - D. generates a constant series of pulses.
 - E. all of the above.
5. In this blinking light circuit, the 555 IC timer is used as . . .
 - A. capacitor.
 - B. an amplifier.
 - C. a clock.
 - D. a resistor.
 - E. all of the above.
6. The output pulses produced by the clock are present on pin . . .
 - A. #1 of the 555 IC.
 - B. #2 of the 555 IC.
 - C. #3 of the 555 IC.
 - D. #4 of the 555 IC.
 - E. #8 of the 555 IC.
7. Pin #3 of the 555 IC will be alternately . . .
 - A. high and low.
 - B. positive and shunted.
 - C. flipped and flopped
 - D. switched and shunted.
 - E. all of the above.
8. In the circuit that you constructed, when pin # 3 is low the LED will . . .
 - A. be on.
 - B. be off.
 - C. blink
 - D. flutter.
 - E. oscillate.
9. In the circuit that you constructed, when pin # 3 is high the LED will . . .
 - A. be on.
 - B. be off.
 - C. blink
 - D. flutter.
 - E. oscillate.
10. **T/F** When you increase the value of the capacitor in the circuit, the frequency of the pulses produced by the 555 timer will decrease.

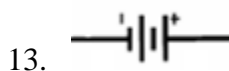
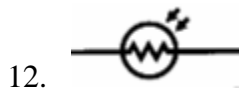
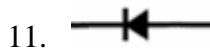
Electronic Symbols Matching Test



- A. NPN Transistor
- B. Disc Capacitor
- C. Ceramic Capacitor
- D. PNP Transistor
- E. IC Timer Chip
- F. Push Button Switch



- A. SCR
- B. Disc Capacitor
- C. Ceramic Capacitor
- D. Resistor
- E. Potentiometer
- F. Speaker



- A. NPN Transistor
- B. LED
- C. Battery or Power Supply
- D. Photocell
- E. Diode
- F. Push Button Switch



tron.ix POST-TEST Part 1 (Lessons 1-8)

1. A law that states “*like charges repel and unlike charges attract each other*”.
 - A. Ohm’s Law
 - B. The Conventional Law of Electronics
 - C. The Law of Charges
 - D. Voltage Law
 - E. Watt’s Law
2. The part of an atom that orbits around the center
 - A. protons
 - B. neutrons
 - C. electrons
 - D. molecules
 - E. particles
3. _____ is the best conductor for electricity.
 - A. aluminum
 - B. copper
 - C. gold
 - D. silver
 - E. carbon
4. These two bands represent number values only.
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5. When the fourth band is a gold color the tolerance for the resistor is
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6. A 100 ohm resistor with a gold band has the tolerance range of
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 - B. five
 - C. six
 - D. ten
 - E. It does not matter because wires can
 - F. connect all the holes together.
9. The center divider of the circuit board is called a
 - A. bridge
 - B. groove
 - C. channel
 - D. divider
 - E. separator

10. Electrolytic capacitors have
 - A. polarity
 - B. have one lead shorter than the other
 - C. have two plates inside
 - D. have an insulator inside
 - E. all of the above

11. Ceramic disc capacitors have
 - A. non polar leads
 - B. have one lead shorter than the other
 - C. have two plates inside
 - D. have an insulator inside
 - E. all of the above.

12. A 103 ceramic capacitor is equal to
 - A. 10,000 Pico farads
 - B. 0.01 microfarads
 - C. 3 Pico farads
 - D. both A and B are correct
 - E. none of the above

13. The function of a resistor is to . . .
 - A. limit current flow
 - B. have a color code
 - C. have fixed values
 - D. are non-polar
 - E. all of the above

14. An LED is brighter when you insert a _____ into the circuit.
 - A. 100 ohm resistor
 - B. 1 K ohm resistor
 - C. 1 M ohm resistor
 - D. 10 ohm resistor
 - E. it does not matter

15. A variable resistor is called a _____.
 - A. fixed resistor
 - B. ballast resistor
 - C. wire wound resistor
 - D. potentiometer

E. all of the above

16. **T/F** This is the symbol for an LED



17. **T/F** This is the symbol for a potentiometer



18. When the light striking the photocell increases, the resistance of the photocell

- A. decreases.
- B. increases.
- C. remains the same.
- D. is infinite.
- E. none of the above.

19. When the light striking the photocell increases, the current of the photocell

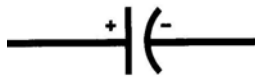
- A. decreases.
- B. increases.
- C. remains the same.
- D. is infinite.
- E. none of the above.

20. **T/F** A photocell acts as a variable resistor in a circuit.

21. A capacitor . . .
- A. controls current flow in a circuit.
 - B. acts as an electron reservoir.
 - C. supplies voltage the circuit.
 - D. amplifies current.
 - E. all of the above.
22. Capacitance of a capacitor is measured in
- A. farads.
 - B. ohms.
 - C. volts.
 - D. amps.
 - E. coulombs.
23. **T/F** This is the symbol for an electrolytic capacitor.




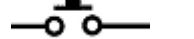


24. **T/F** This is the symbol for a ceramic capacitor.











tron.ix Lab 1 POST-TEST PART 2 of 2

Lessons 9 through 15.

1. A speaker transforms electrical energy into . . .
 - A. light.
 - B. heat.
 - C. sound waves.
 - D. microwaves.
 - E. none of the above.
2. When a speaker is energized, the cone . . .
 - A. moves.
 - B. produces heat.
 - C. emits light.
 - D. does nothing.
 - E. stores energy.
3. The direction the speaker cone moves is dependent upon . . .
 - A. the resistance in the circuit.
 - B. the direction of the current flow.
 - C. the battery voltage.
 - D. the temperature.
 - E. all of the above.
4. When current flows through an LED it emits . . .
 - A. light.
 - B. heat.
 - C. sound waves.
 - D. microwaves.
 - E. x-rays.
5. A diode is an electronic device that allows current to flow through it . . .
 - A. in two directions.
 - B. in one direction only.
 - C. when the cathode is positive.
 - D. when the anode is negative.
 - E. none of the above.
6. The correct symbol for a diode is
 - A. 
 - B. 
 - C. 
 - D. 
 - E. none of the above.
7. An SCR is a diode with three terminals, called . . .
 - A. emitter, base, and collector.
 - B. emitter, gate, and collector
 - C. emitter, anode, and collector
 - D. emitter, cathode, and gate
 - E. anode, cathode, and gate
8. If the SCR is conducting and the positive voltage is removed from the gate, it will . . .
 - A. stop conducting.
 - B. conduct intermittently.
 - C. continue conducting.
 - D. burn-up the SCR.
 - E. none of the above.

9. Which SCR symbol indicates the correct polarity to allow current flow when the gate is activated . . . ?

- A.  A. 
- B.  B. 
- C.  C. 
- D.  D. 

10. The transistor is a component used to . . .

- A. store electricity.
 B. amplify electricity
 C. transform electricity into sound waves
 D. produce heat
 E. all of the above









11. The three leads of a transistor are called . . .

- A. emitter, base, and gate
 B. anode, cathode, and gate
 C. anode, cathode, and collector
 D. emitter, base, and collector
 E. emitter, base, and anode.

12. Transistors are manufactured in two types . . .

- A. ceramic and electrolytic.
 B. VCO and CVO.
 C. NPN and PNP.
 D. EBC and NCR.
 E. none of the above.

13. Which schematic symbol is correct for an NPN transistor?

- A.  A. 
- B.  B. 
- C.  C. 
- D.  D. 

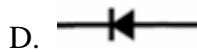
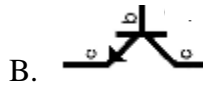
14. In a PNP transistor, the collector current flows from . . .

- A. collector to emitter.
 B. base to emitter.
 C. collector to base.
 D. gate to collector.
 E. none of the above.

15. In a PNP transistor, the base current flows from . . .

- A. base to collector.
 B. emitter to base.
 C. emitter to collector.
 D. base to emitter.
 E. none of the above.

16. Which schematic symbol is correct for a PNP transistor?



17. Anything moving back and forth in a regular, uniform manner is said to be . . .

- A. orbiting.
- B. oscillating
- C. wavering
- D. erratic
- E. deviating

18. Typical examples of mechanical oscillators are . . .

- A. a pendulum
- B. a playground swing
- C. a metronome
- D. all of the above
- E. none of the above.

19. The frequency of an oscillating current is a measurement of . . .

- A. the number of changes occurring in one second.
- B. amplitude of the changes.
- C. the voltage of the signal.
- D. the amps produce in a second.
- E. all of the above.

20. The unit of measurement for frequency is the Hertz which represents . . .

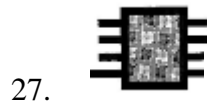
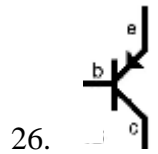
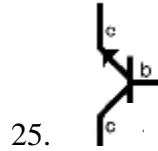
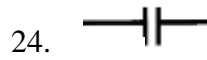
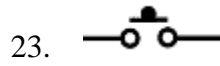
- A. one volt per second.
- B. ten cycles of change per second.
- C. one cycle of change per second.
- D. sixty cycles of change per second.
- E. no cycles of change per second.

21. The blinking light of this circuit is built around a . . .

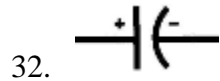
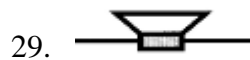
- A. two transistor oscillator.
- B. CMOS chip
- C. 555 IC timer
- D. 2N3904 transistor
- E. light activated diode

22. A clock as the term is used in electronics, is a device that . . .

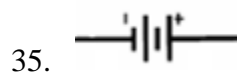
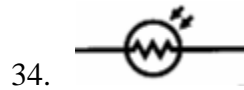
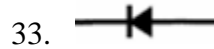
- A. tells time
- B. generates light
- C. amplifies current.
- D. generates a constant series of pulses.
- E. all of the above.



- A. NPN Transistor
- B. Disc Capacitor
- C. Ceramic Capacitor
- D. PNP Transistor
- E. IC Timer Chip
- F. Push Button Switch



- A. SCR
- B. Disc Capacitor
- C. Ceramic Capacitor
- D. Resistor
- E. Potentiometer
- F. Speaker



- A. NPN Transistor
- B. LED
- C. Battery or Power Supply
- D. Photocell
- E. Diode
- F. Push Button Switch